

between instructed and noninstructed students when assigning students randomly to the instructional condition was not possible; the hallmark of the true experiment is random assignment to conditions). Readers should note especially that every one of the well validated components detailed in this section was detected in the effective classrooms that were the focus of research summarized in the foregoing section.

Most of the work reviewed in this section also is particularly pertinent in the context of a discussion of students with learning difficulties, for many of the single-component interventions have been aimed at specific problems that some children experience as they learn to read. Struggling young readers certainly have been studied much more extensively with respect to single-component reading interventions than have average or above-average young readers.

Phonemic Awareness and the Alphabetic Principle

Phonemic awareness is a special type of metacognitive awareness. It is awareness that words are composed of separable sounds that are blended together. The *alphabetic principle* is the awareness that sounds are represented in words by the letters of the alphabet. These fundamental awarenesses are critical for the beginning reader. Without awareness that letters map sounds that can be blended together, there would be little incentive for paying attention to the individual letters of words, and lessons about individual letter sounds would make little sense.

Phonemic awareness, in particular, has received a great deal of attention, largely because of demonstrations that low phonemic awareness in the early grades predicts reading problems in the middle grades (e.g., Bowey, 1995; Juel, 1988; Näslund & Schneider, 1996; Stuart & Masterson, 1992). More positively, however, phonemic awareness can be developed through instruction, and when it is, subsequent reading difficulties are reduced (e.g., Bradley & Bryant, 1983, 1985, 1991; Byrne & Fielding-Barnsley, 1991, 1993, 1995; Lundberg, Frost, & Peterson, 1988; Lie, 1991; O'Connor, Jenkins, & Slocum, 1995; Vellutino & Scanlon, 1987; Williams, 1980; Wise & Olson, 1995). Instruction typically involves word games, such as detecting words that rhyme, pronouncing words when one sound is removed from another word (e.g., What does *mat* sound like if the *m* is removed? What does *mat* sound like if the *t* is removed?), and pronouncing words when a sound is added (e.g., What does *at* sound like if an *m* is added at the beginning? What does *ma* sound like if a *t* is added to the end?).

This instruction typically occurs over the course of months for a few minutes each day. It increases phonemic awareness in the short term and contributes to reading skill in the long term, which provides incentive for including such instruction in the early primary years (i.e., kindergarten and grade 1), especially to students who lack phonemic awareness upon entering kindergarten or grade 1.

In arguing for including phonemic awareness in literacy instruction, we are emphatic that phonemic awareness instruction is not a one-time quick fix. Development of phonemic awareness in kindergarten and grade 1 accounts for only a very small proportion of reading success in the middle elementary grades (Bus &

van IJzendoorn, 1999). This warning is necessary because some policymakers seem to believe that instruction in phonemic awareness is a cure for preventing reading difficulties. In fact, it is only one ingredient in the cure, with the best medicine being a balanced reading instructional program involving skills instruction and holistic opportunities.

Particularly relevant in a discussion of balanced reading instruction are demonstrations of the effectiveness of phonemic awareness in programs that are otherwise whole language in outlook. The best known—and a well-designed—study was offered by Castle, Riech, and Nicholson (1994). Participants in the study were all enrolled in a whole language kindergarten. Students receiving phonemic awareness instruction participated in two 20-minute sessions a week, whereas control participants received instruction of skills not related to phonemic awareness. After 10 weeks of instruction, the phonemic awareness instruction improved the students' spelling skills as well as their sounding out of pseudowords. In general, inserting phonemic awareness into ongoing beginning literacy instructional environments has yielded positive effects on early reading skills (e.g., Blachman, Ball, Black, & Tangel, 1994; Byrne & Fielding-Barnsley, 1991, 1993, 1995).

Word Recognition Instruction

"The great debate" (Chall, 1967/1983) in beginning reading largely has been about what type of word recognition instruction works best with beginning readers. Chall's answer, based on the research available up until the middle 1960s, was that synthetic phonics instruction produced better readers than the whole word approach predominant in schools in those days. *Synthetic phonics* involves teaching students to map letters in words to their sounds and to pronounce the word by blending the sounds (i.e., sounding out the word). In contrast, the whole word approach involves learning words as wholes. After a number of whole words were known to readers as sight words, readers could be taught to analyze the sight words into their component sounds.

The whole word approach was used most prominently in the Dick-and-Jane readers published by Scott, Foreman, and Company. An especially important finding in the Chall analyses was that synthetic phonics seemed to be especially beneficial for weaker students.

Since the time of Chall's findings, a number of demonstrations have concurred that intensive synthetic phonics-type instruction can improve the word recognition skills of children who have difficulties with beginning reading (e.g., Alexander, Anderson, Heilman, Voeller, & Torgesen, 1991; Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998; Foorman, Francis, Novy, & Liberman, 1991; Lovett, Ransby, Hardwick, Johns, & Donaldson, 1989; Lovett et al., 1994; Manis, Custodio, & Szeszalski, 1993; Torgesen et al., 1996; Torgesen et al., 1999; Vellutino et al., 1996). Most children who have difficulties in initial word recognition problems can be helped by being taught how to sound out words using synthetic phonics.

Even so, synthetic phonics is not the only approach in the marketplace of word-nition interventions that seems to work with struggling beginning readers. They can also recognize new words by analogy to words they know already. They recognize *bat* because they already know *at*; they recognize *bar* because they already know *car*.

The best developed decoding-by-analogy program that I have encountered—"Word ID" program (Gaskins, Gaskins, Anderson, & Schommer, 1995; Gaskins, Gaskins, & Gaskins, 1991, 1992)—was developed by Irene Gaskins, Ma Ehri, and Patricia Cunningham at Benchmark School, a school dedicated to the education of students who struggle to learn to read. At the heart of the program are 120 key words that capture the key spelling patterns associated with the English-language vowels. In addition, there are key words for the two sounds for *g* (e.g., girl, giraffe) and the two sounds for *c* (e.g., can, city). Some word parts that always sound the same (e.g., -tion) are taught as wholes.

For example, to decode the word *dispatcher*, the word-ID user would learn to identify a keyword for each syllable of the word. For the first syllable, *dis-*, the keyword *this* could be used, as the vowel *i* is followed by a consonant. For the second syllable, *-patch-*, the keyword could be *cat*, as the *a* in *-patch-* is followed by a consonant. For the final syllable, *-er*, *her* would apply. Thus, the student would know the sequence of vowel sounds in the word. The student, who is also learning the simple consonant-sound associations of English plus the digraphs and consonant blends, could then be able to sound out the word, *dispatcher*.

The program extends over several years at Benchmark, with keyword learning and practice of the approach both requiring substantial instructional time. After several years of experience with the program, most Benchmark students can use the memorized key words with ease to decode multisyllable words they have not encountered previously.

The effects of word ID and synthetic phonics instruction are roughly comparable (DeWitz, 1993; Lovett et al., 1994) in developing the decoding skills of beginning readers. Lovett et al.'s study was especially notable because it involved teaching students who had a great deal of previous difficulties in learning to read—much like Benchmark students. In general, teaching children to decode by analogy to known words is effective in developing young readers who can decode words they have not seen before (e.g., Ehri & Robbins, 1992; Goswami, 2000; Peterson & Leary, 1992; van Daal, Reitsma, & van der Leu, 1994).

Word ID lessons do much more than teach children to decode. When keywords are introduced, children also learn the meanings of the key words. The keywords are also used as part of story writing. The lessons include reading of picture books. Students hear and read good literature every day they are enrolled at Benchmark.

The Benchmark approach is anything but a decoding-only approach. Rather, word-ID is embedded in a full literacy development program and is used to empower children so they can participate fully in reading real literature and writing. It is part of a balanced literacy program.

Although it is fine for a beginning reader to sound out words consciously or to use an analogy approach deliberately to recognize words, older, skilled readers use neither of these tactics deliberately. Rather, good readers simply recognize words they have encountered previously without making synthetic-phonics or word-ID efforts. That they can do so almost effortlessly frees up their consciousness (working memory) to attend to other aspects of the reading tasks—to comprehend what they are reading. The human mind can do only so many things at once, and word recognition requires so much effort that little consciousness remains for comprehension of the words being read (Baron, 1977; LaBerge & Samuel, 1974)—let alone their combined meanings in sentences, paragraphs, and whole texts.

Fortunately, with experience in recognizing words comes automatic, rapid, accurate, and less effortful reading of individual words (Horn & Manis, 1987). Balanced word recognition instruction teaches tactics for effortful decoding but also provides many opportunities for students to practice reading words until word recognition is automatic.

Vocabulary Teaching

Good readers have good vocabularies (Anderson & Freebody, 1991; Nagy, Anderson, & Herman, 1987). Moreover, reading comprehension improves when vocabulary words are taught explicitly. For example, Beck, Perfetti, and McKeown (1982) taught grade-4 children a corpus of 104 words over a 5-month period. The children who received the instruction outperformed non-instructed children on subsequent comprehension tests (see also Beck & McKeown, 1991; Durso & Coggins, 1991).

Children learn the meanings of many words by experiencing the words in the actual world and in text worlds (e.g. Dickinson & Smith, 1994; Elley, 1989; Morrow, Pressley, Smith, & Smith, 1997; Pelligrini, Galda, Perlmutter, & Jones, 1994; Robbins & Ehri, 1994; Rosenhouse, Feitelson, Kita, & Goldstein, 1997). That is, they encounter the vocabulary without any explicit instruction in the words and their meanings (Stanovich, 1986; Sternberg, 1987). Such incidental learning is filled with potential pitfalls, however. For example, often the vocabulary meanings that readers infer from context are wrong (Miller & Gildea, 1987). Explicit teaching of the meanings of important vocabulary makes sense, for, in its absence, young readers may have substantial misconceptions about what critical vocabulary mean.

Comprehension Strategies

Good readers are aware of why they are reading a text. They overview text before reading, make predictions about the upcoming text, read selectively based on overviewing, associate ideas in text to what they already know, note whether their predictions and expectations about text content are being met, sometimes revise their thinking based on ideas in text, figure out the meanings of unfamiliar vocabulary based on context clues, underline and reread, make notes and paraphrase, interpret,

evaluate the quality of the text, review important points as they conclude reading, and think about how they might use ideas they encounter in the text (Pressley & Hlerbach, 1995).

Balanced reading instruction can develop these active reading skills in students. The main approach for doing so is through instruction in comprehension strategies. A number of individual strategies can be taught, including predicting, questioning during reading, seeking clarification when confused, constructing mental images representing ideas in text, and summarizing (Pearson & Dole, 1987; Pearson & Fielding, 1991; Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989). Of course, good readers do not use strategies such as these one at a time. Hence, balanced reading instruction includes teaching students to articulate these various strategies as they read.

Effective comprehension strategies instruction begins with extensive teacher explanation and modeling of strategies, followed by teacher-scaffolded use of the strategies, culminating in student self-regulated use of the strategies (e.g., Anderson, 1992; Brown, Pressley, Van Meter, & Schuder, 1996; Duffy et al., 1987). When the instruction has been successful, it always has been long-term, occurring over a semester to a school year at a minimum. The benefits are consistent and striking (e.g., Collins, 1991), with several compelling demonstrations that such teaching dramatically improves the reading comprehension of weaker readers.

Thus, balanced reading instruction includes modeling and explaining of comprehension strategies and student practice of the strategies with teacher support. Excellent teachers of comprehension strategies let students know that they should continue to use strategies when reading on their own. The teaching takes place across every school day in a well-balanced elementary literacy program, continuing as long as required to get all readers to use the strategies independently. Typically, this means that excellent comprehension strategies instruction occurs over a few years.

Self-Monitoring

Balanced reading instruction teaches children to be aware when they are having difficulties with reading and to react constructively to problems during reading. That is, balanced reading instruction requires teaching students to self-monitor their reading. Good readers know when they need to exert more effort to make sense of a text. For example, they are aware when they have sounded out a word but the sounded-out word does not make sense in the context (Isakson & Miller, 1976). When good readers have that feeling, they try rereading the word in question. Teaching young readers to self-monitor their reading of words makes good sense because they often read wrong words (e.g., "Little Miss Muffett sat on her tupperware," Baker & Brown, 1993, 34).

Balanced approaches to word recognition instruction incorporate a self-monitoring approach, in which readers are taught to pay attention to whether their decoding of words makes sense. When a word they read is not in synchrony with other words as in the text and pictures accompanying the text (e.g., Iversen & Tunmer, 1993),

balanced reading instruction emphasizes that students should try to decode it again (e.g., attempt carefully to sound it out).

Good readers also are aware when they are confused as they read; they self-monitor their comprehension (Baker & Brown, 1984). Teaching young readers to self-monitor and change their reading tactics when they are confused makes sense. Thus, balanced reading teachers teach their students to ask themselves, "Is what I am reading making sense?" They also teach students that initially confusing text often can be rendered sensible (e.g., by slowing down and reading more carefully, rereading confusing sections of text).

Extensive Reading

Many elementary classrooms have the banner "Read, Read, Read." It is good advice. Reading increases word recognition skills and the likelihood that beginning readers eventually will become fluent readers. Their vocabulary knowledge expands through reading. Reading high-quality books increases their world knowledge in general, which is critical, as well developed knowledge of the world facilitates comprehension in the future (Anderson & Pearson, 1984). For example, a child who has read a lot about Egypt will better understand an article about construction of the pyramids than will a reader who lacks prior knowledge about Egypt. In short, a balanced reading program should include extensive reading of good books, stories, and articles (e.g., Stanovich & Cunningham, 1993).

Despite the benefits of extensive reading, reading a great deal does not guarantee that a student will become an excellent reader. Many students actually get to college lacking the active comprehension skills of sophisticated readers (see Cordón & Day, 1996). That is why balanced reading programs include explicit teaching of comprehension strategies and self-monitoring, for these higher-order skills do not develop automatically from extensive reading, even if extensive reading does improve many word-level skills and increase factual knowledge.

Teaching Students to Relate Prior Knowledge While They Read

That extensive prior knowledge can increase comprehension does not mean that it always does so. Readers do not always relate their world knowledge to the content of a text, even when they possess knowledge relevant to the information in the text. Often, they do not make inferences based on prior-knowledge unless the text demands the inferences to make sense of it (McKoon & Ratcliff, 1992).

That even good readers often fail to relate what they know to a reading, however, means that more is needed in many cases for readers to benefit from their prior knowledge. A large number of experiments conducted in the late 1980s into the 1990s demonstrated the power of "Why?" questions. Why-questions encourage readers to orient to their prior knowledge as they read, to relate what they know

ready to what is being read (Pressley, Wood, Woloshyn, Martin, King, & Menke, 1992).

In those studies, readers were encouraged to ask themselves "why" the facts being presented in text made sense. This encouragement consistently produced a large effect on memory of the texts. The most compelling explanation that emerged from analytical experiments (see especially Martin & Pressley, 1991) was that the why-questioning oriented the readers to prior knowledge that could explain the facts being encountered in text. Thus, a Canadian person reading that baseball in Canada started in Ontario might not automatically infer that Ontario was close to New York, where baseball was first popular in America, even if the reader knew much about the early days of baseball in New York. If that same reader were to ask himself or herself why it would make sense that Ontarians were the first Canadians to play baseball, the early history of New York baseball might come to mind and permit the insight that geographical proximity was an important determinant.

Typically, when readers process text containing new factual information, they do not automatically relate the new information to their prior knowledge, even if they have a wealth of knowledge that could be related to the information. The lesson emerging from these studies is to encourage readers to relate what they know to information-rich texts they are reading, with a potent mechanism for doing this being why-questioning (referred to as *elaborative interrogation* by Pressley and his associates). In balanced reading programs, students are taught to relate to what they read, information they know already about a content area.

Process Writing Instruction

In balanced classrooms, students not only read, read, and read, but they also write, write, and write. One model of student writing is simply to let the kids write, and they will improve. The difficulty with this approach is that improvement is often slow, especially compared to approaches in which students are taught explicitly how to write using process writing instruction.

Process writing instruction fundamentally involves (a) teaching students to plan before they write, (b) construct drafts, and (c) revise drafts with respect to meaning and mechanics (e.g., Flower & Hayes, 1980). Students can be taught a variety of specific strategies for each of these three steps, and specific students can be taught procedures for different types of writing (e.g., narratives, expositorys, book reports; Harris & Graham, 1996). Important in this context are the many validations of writing process instruction with students who otherwise experience difficulties expressing themselves in writing (see Harris & Graham, 1996).

Motivating Reading and Writing

Motivating students to read and write is important, especially for students who at first have difficulty in learning to read. These students often conclude that they lack the ability to become literate, and this attribution undermines their efforts to read and write (e.g., Jacobsen, Lowery, & DuCette, 1986; Pearl, 1982).

A huge educational, motivational literature has accumulated in the past quarter of a century, with many mechanisms for encouraging student motivation identified by educational researchers interested in motivation. The relevant mechanisms include teaching students to believe they can be successful with effort (see Borkowski, Carr, Rellinger, & Pressley, 1990), providing many rich print and reading experiences (Gambrell, 1996; Morrow, 1992; Morrow & Sharkey, 1993; Palmer, Codling, & Gambrell, 1994), providing holistic literacy experiences (e.g., opportunities to compose stories; Turner, 1995), connecting literacy instruction with content-area learning (e.g., Guthrie, 1996; Guthrie et al., 1996), and encouraging cooperative learning rather than competition (Ames, 1984; Nicholls, 1989).

SUMMARY

Lots of individual educational interventions have been validated and deserve a place in a balanced literacy instruction program. Can we really fold into one classroom instruction in phonemic awareness, teaching of word recognition, vocabulary development, inculcation of comprehension strategies, prior knowledge development and instruction about how to use prior knowledge, and teaching of self-monitoring? Can extensive holistic reading and process writing occur in a classroom in which so many reading skills are being taught? As teachers mix skills instruction with holistic reading and writing, can they also employ the many motivational mechanisms that have been validated?

The answer comes from the research review in the first half of this article. Excellent literacy teachers do it all! They balance skills teaching and holistic experiences while flooding their classrooms with motivation. The case in favor of balanced literacy teaching is growing, a case that follows from balanced reflection on qualitative analyses of effective classrooms and quantitative studies of specific components of instruction.

Plenty of work is left to be done. The research on balanced literacy instruction has focused mostly on the primary years, so much more research is needed in the upper elementary grades and the secondary years. We think the greatest challenge in the years ahead, however, is to find out whether more teachers can be developed who balance their literacy instruction in effective classrooms such as those described in this article.

We look forward to true experiments in which achievement is measured both in classrooms where teachers who previously were less balanced and more incomplete in their teaching have been taught to balance literacy instruction and in control classrooms in which instruction continues to be imbalanced and incomplete. If teaching teachers to be more balanced in fact changes the teachers' teaching and their students' achievement, it will provide powerful additional evidence in favor of the balanced literacy instructional model specified in Pressley's (1998) book.

Alysia Roehrig and Michael Pressley have begun research to explore whether beginning teachers can be transformed into more balanced and more effective teachers. A preliminary hypothesis emerging from this work is that only some teachers

may be so open to such reeducation and modification of their teaching (see also Pressley & El-Dinary, 1997). If that turns out to be the case, maybe an important research question will be how to identify individuals who can become balanced and effective literacy teachers. How can teacher education programs be more selective about who is admitted to assure teachers who can and will do all that needs to be done to promote literacy engagement and achievement? Although much has been learned about balanced literacy instruction, much remains to be learned.

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